The Michigan DNR Approach to Sustainable Timber Management of the State Forest

The Michigan State Forest is certified as sustainably managed under the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI) certification standards. FSC standard Criterion 5.6 requires that "the rate of harvest of forest production shall not exceed levels which can be permanently sustained". SFI Performance Measure 1.1 addresses the sustainability of long-term harvest levels by requiring that "… forest management plans include long-term harvest levels that are sustainable and consistent with appropriate growth-and-yield models".

The State Forest system approach to sustainable timber management is predicated on a sophisticated and continually updated forest inventory. This enables the use of a modified area control method and the associated balancing of age classes rather than volume control. The Dictionary of Forestry defines area regulation as "an indirect method of controlling (and roughly determining) the amount of forest produce (products) to be harvested annually or periodically, on the basis of stocked area." [1] Most public forestry agencies employ an area regulation approach to achieve sustainable, even flows of timber. For the State Forest system, area control is used for even-age stands such as aspen, jack pine, and some oak. In uneven-age stands such as northern hardwoods a basal area/stocking approach is used and in red and white pine stands a combination of basal area and age class is used.

The calculation of sustained yield harvest levels are based upon several factors:

- The desired future condition for the forest type, which include area regulated (balanced) age class distributions and the perpetuation or transition of dominant forest types based upon Kotar habitat classification;
- The present acreage and age class and/or stocking condition of forest types, based upon inventory data;
- Areas that are reserved from harvest due to treatment limiting factors or other management goals (including SCAs, HCVAs and ERAs); and
- The type of silvicultural practices that are typically employed for different cover types, age classes, and means of forest regeneration.

In addition to the above factors, disease, insect, wind, or fire mortality may impact harvest levels. Where disease, insect, or fire mortality problems are known in advance in a Forest Management Unit, they are taken into consideration when establishing harvest levels for that area. These factors cannot be taken into account in planning, and when they do occur, harvest schedules are often adjusted in the compartment review process to address them. Where there are occurrences of disease or insect outbreaks or large wind throws or wildfires, they are usually quite localized and may lead to unanticipated temporary increases in salvage harvests to avoid major losses in timber value. These unanticipated harvests are taken into account in subsequent annual planning analyses and processes.

[1] Helms, John A. (editor). 1998. The Dictionary of Forestry. Society of American Foresters, Bethesda, MD. 210 pp.

All the above factors are integrated into DNR planning processes at the strategic-level (2008 Michigan State Forest Management Plan), operational-level (pending Regional State Forest Management Plans), and the tactical-level (through the compartment review process). In the absence of completed Regional State Forest Management Plans, these factors are currently applied on the basis of each Forest Management Unit during the compartment review process. The compartment review process incorporates pre-inventory reviews in which Timber Management Specialists, Inventory Planning Specialists, foresters and wildlife biologists review current age class and stocking data and long-term resource analyses and projections, which are in turn used to determine the forest prescriptions that result in timber harvest treatments. These analyses are currently conducted on the basis of Forest Management Units. In this manner, the DNR management system ensures that State Forest timber harvest levels are sustainable and comply with forest certification standard requirements.

Each of the above factors is also being considered in formulating the management direction for each Management Area in each Regional State Forest Management Plan, which (when completed) will provide specific projections of harvest levels (in acres) for the major and minor cover types in each Management Area over the following 10 year compartment review cycle. The management direction contained within each plan MA section will in turn be considered in the compartment review process. Analyses for the pre-inventory reviews will then shift from a Forest Management Unit level basis to that of Management Areas.